WBS 3.0 C-0 Outfitting

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Feeders 31,32,44 & 45 Upgrade

- The Laboratory infrastructure vision statement is “to establish and maintain a dependable base from which Particle Physics and other FNAL programs can be safely accomplished without interruption.” Objectives supporting this vision include:
- • *Avoid unscheduled downtime* – the operating platform used to successfully conduct HEP missions including the facilities, utilities, and other general services shall be operated and maintained at the highest levels.
- • *Achieve and maintain a safe and healthy environment* – create a workplace that eliminates the potential for threat to human, material, and environmental resources.
- • *Establish and improve infrastructure to the SC standards* – modernize all infrastructure to the prescribed standards of operational effectiveness and modernization consistent with established criteria and guidelines.

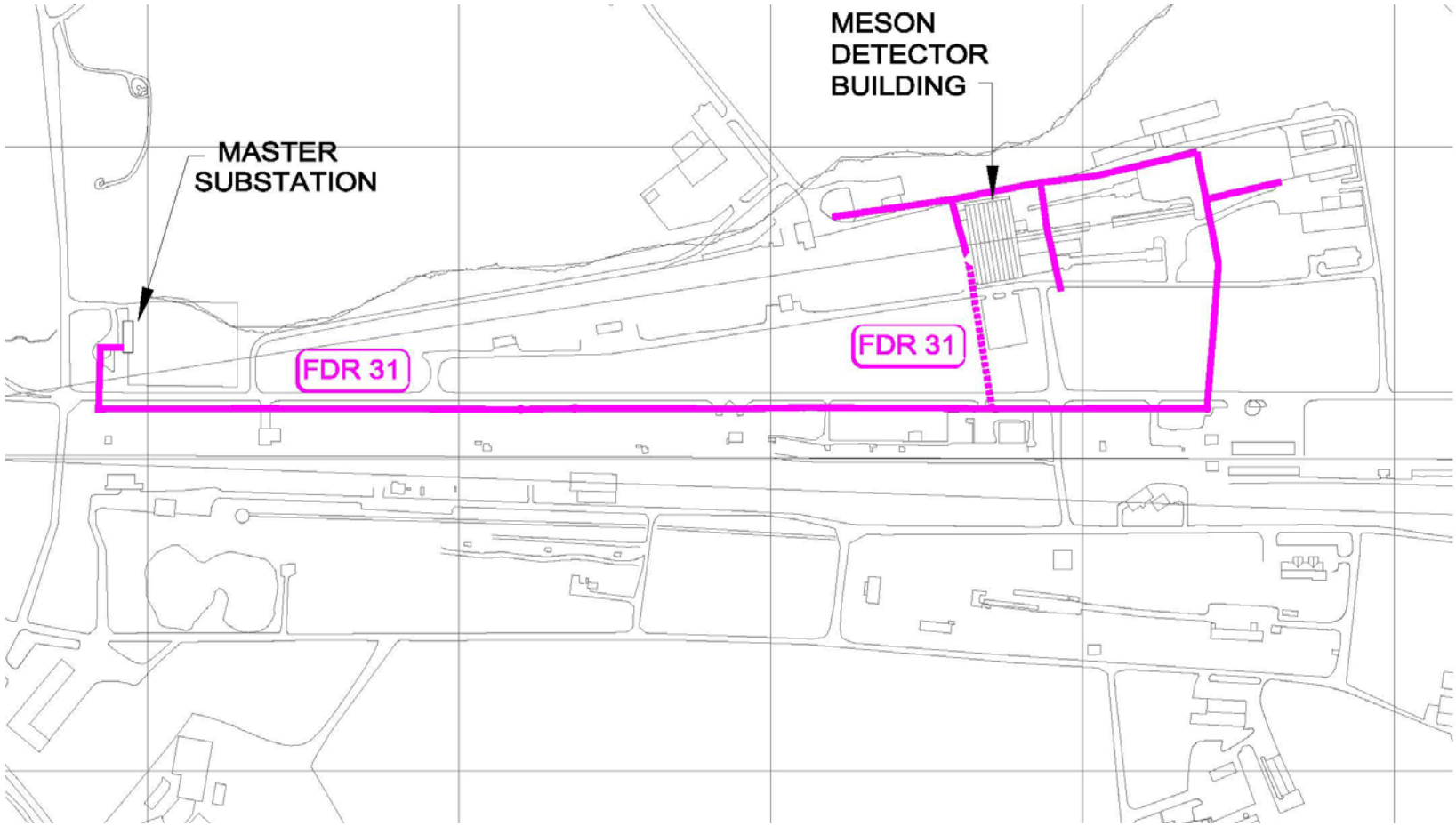
Feeders 31,32,44 & 45 Upgrade

- In support of this vision, this project will replace and upgrade older portions of the high voltage electrical backbone that delivers power to the site and distributes it to mission critical facilities. Infrastructure management initiatives over the past few years have significantly advanced Fermilab towards achieving those objectives. Using a critical-systems planning process, the prioritization and capital allocation process in combination with GPP funding and third party investments, some deteriorated portions of the high-voltage distribution system have been improved. But limited resources have not met needs. There are various elements of the high voltage distribution system that are rated as poor based on their current condition, are unreliable and will continue to deteriorate with age.

Feeders 31,32,44 & 45 Upgrade

- FESS management with the consul of the project manager and members of the FESS Electrical Operations Group have prioritized that replacement of portions of Feeders 31, 32, 44 and 45 will provide the maximum benefits to provide reliable electrical service. All elements of this project directly support the mission and vision described above and is necessary to improve reliability to the required levels.

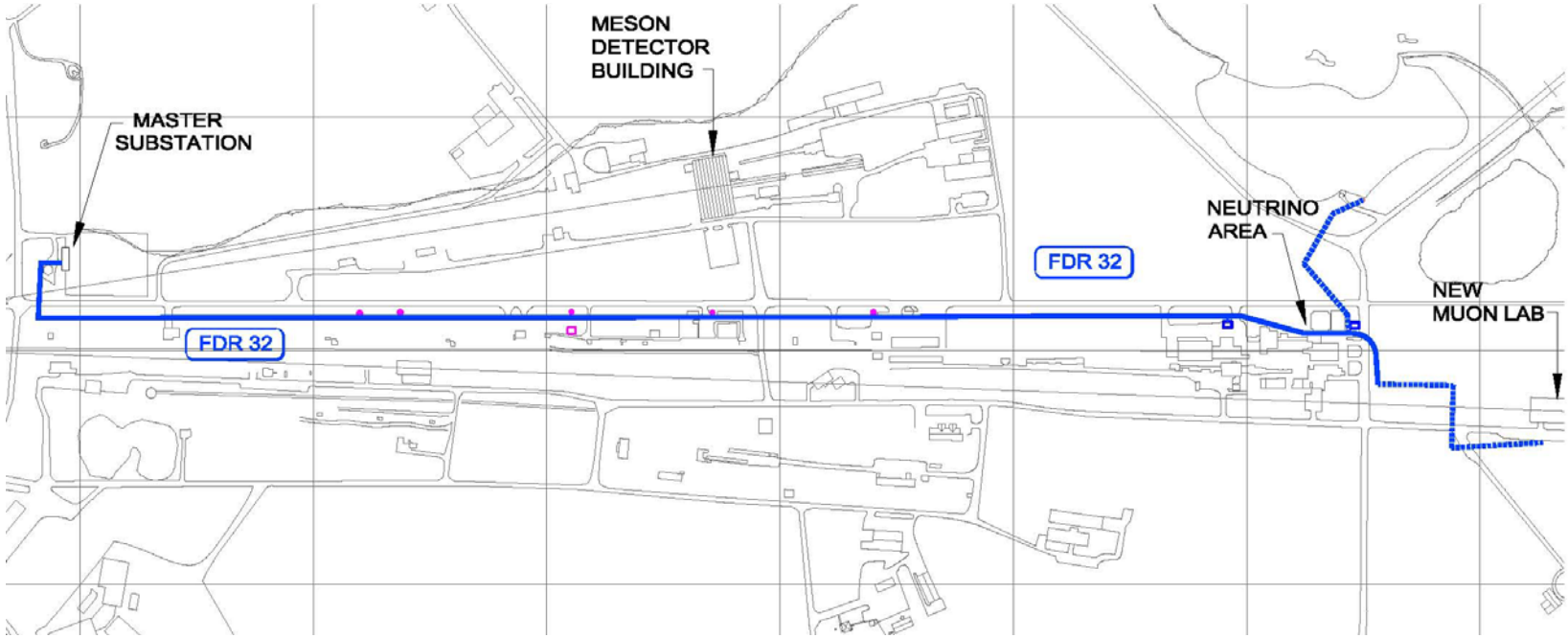
Feeder 31



FEEDER 31

- WORK INCLUDES:
- REPLACEMENT OF CABLE BETWEEN THE MASTER SUBSTATION AND EXISTING POWER MANHOLE P-123A. NEW IN-LINE SPLICES, WYE SPLICES AND FEEDER TAPS SHALL BE INSTALLED AS PER DWG. E-13.
- EXISITNG OIL SWITCH AT P-123 SHALL BE REMOVED AND REPLACED WITH TWO NEW 15KV AIR SWITCHES.
- TEMPORARY GENERATOR INSTALLATION WILL BE REQUIRED AT NL-12 DURING THE PERIOD OF FEEDER SHUTDOWN FOR BUILDING LIGHTING, SUMP PUMPS HEATING AND FIRE DETECTION PURPOSES. MINIMUM GENERATOR SIZING IS ANTICIPATED TO BE 150KVA (480/277V). SUBCONTRACTOR SHALL PERFORM ALL REQUIREMENTS FOR THE INSTALLATION OF THE TEMPORARY GENERATORS, INCLUDING CABLES, TERMINATIONS, PHASING AS WELL AS BE RESPONSIBLE FOR THE STARTING, OPERATION AND FUELING OF THE GENERATORS.

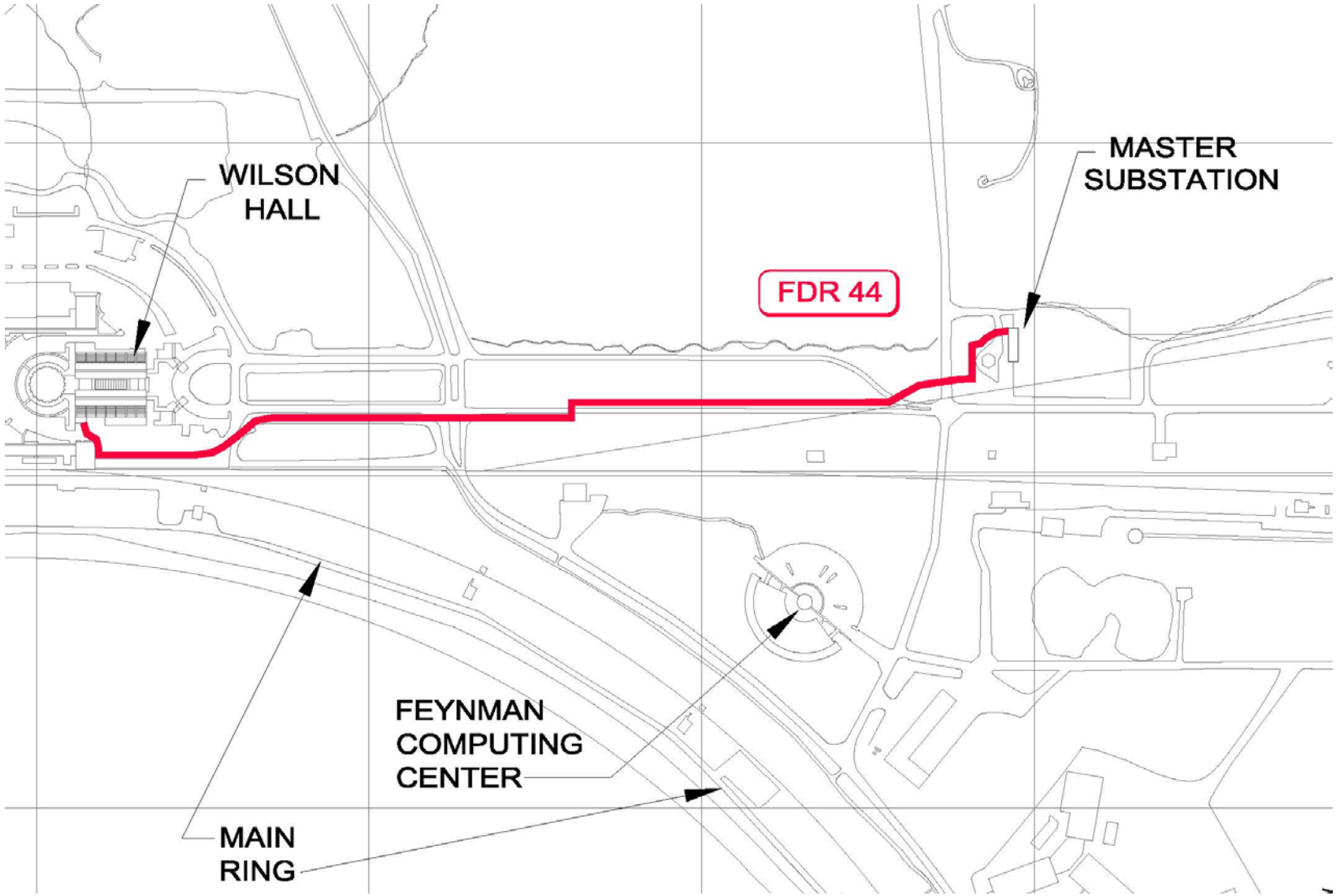
Feeder 32


MESON
DETECTOR
BUILDING
MASTER
SUBSTATION
NEUTRINO
AREA
FDR 32
FDR 32
NEW
MUON LAB

Feeder 32

- WORK INCLUDES:
  - REPLACEMENT OF CABLE BETWEEN THE MASTER SUBSTATION AND EXISTING POWER MANHOLE P-123A. NEW IN-LINE SPLICES, WYE SPLICES AND FEEDER TAPS SHALL BE INSTALLED AS PER DWG. E-13.
  - EXISITNG OIL SWITCH AT P-123 SHALL BE REMOVED AND REPLACED WITH TWO NEW 15KV AIR SWITCHES.
  - TEMPORARY GENERATOR INSTALLATION WILL BE REQUIRED AT NL-12 DURING THE PERIOD OF FEEDER SHUTDOWN FOR BUILDING LIGHTING, SUMP PUMPS HEATING AND FIRE DETECTION PURPOSES. MINIMUM GENERATOR SIZING IS ANTICIPATED TO BE 150KVA (480/277V). SUBCONTRACTOR SHALL PERFORM ALL REQUIREMENTS FOR THE INSTALLATION OF THE TEMPORARY GENERATORS, INCLUDING CABLES, TERMINATIONS, PHASING AS WELL AS BE RESPONSIBLE FOR THE STARTING, OPERATION AND FUELING OF THE GENERATORS.
- FEEDERS 33 AND 35 ARE THE ALTERNATES FOR FEEDER 32.

Feeder 44

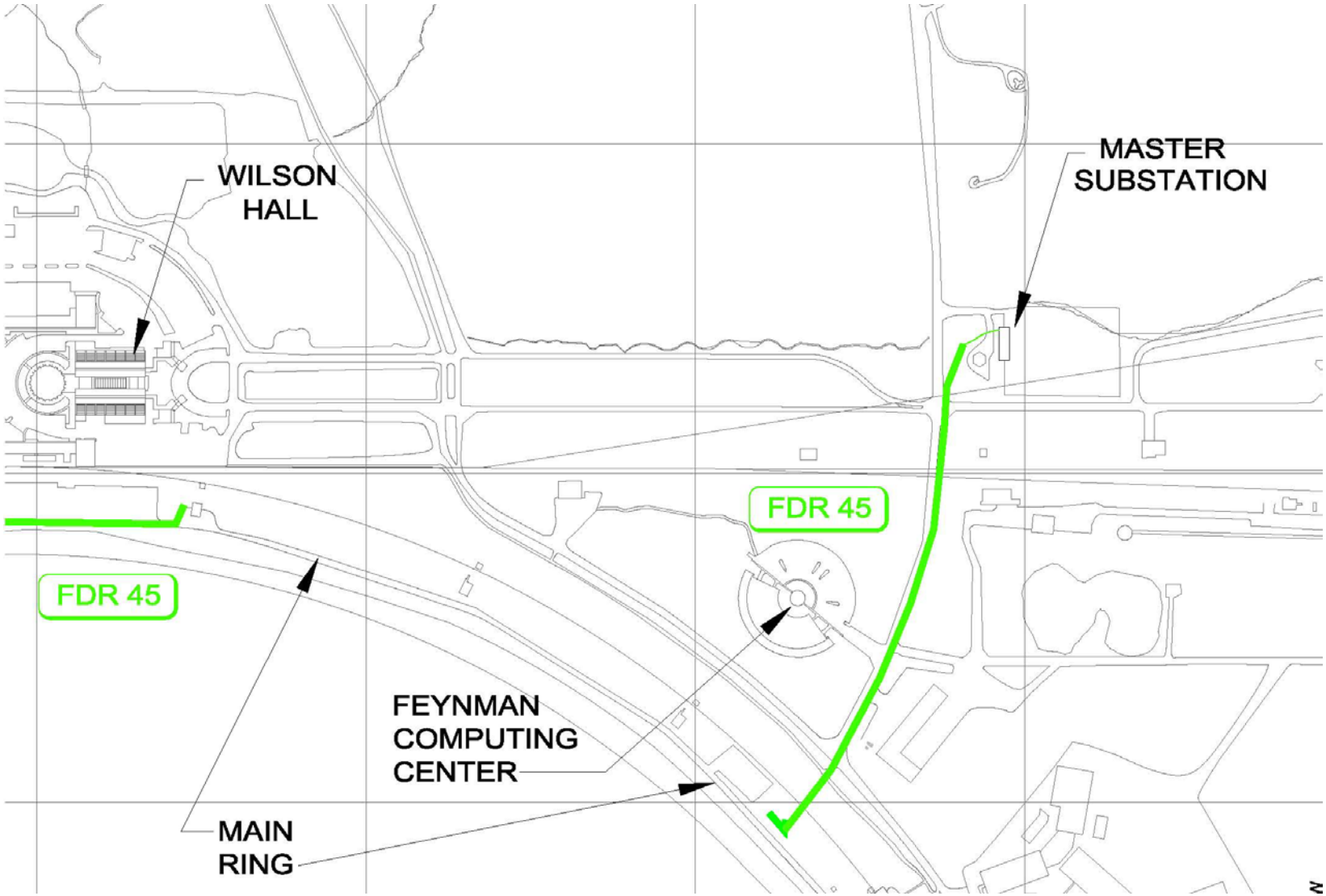

WILSON
HALL
MASTER
SUBSTATION
FDR 44
FEYNMAN
COMPUTING
CENTER
MAIN
RING

Feeder 44

- WORK INCLUDES REPLACEMENT OF CABLE:
  - BETWEEN THE MASTER SUBSTATION AND THE EXISTING 15KV SWITCH AT ROAD “A;
  - BETWEEN EXISITNG MANHOLE P-5 AND P-8;
  - BETWEEN EXISITNG MANHOLE P-4A AND THE N1 PUMP STATION TRANSFORMER.
  - NEW IN-LINE SPLICES, WYE SPLICES AND FEEDER TAPS SHALL BE INSTALLED AS PER DWG. E-34.

- FEEDERS 42 IS THE ALTERNATE FOR FEEDER 44.

Feeder 45


WILSON
HALL
MASTER
SUBSTATION
FDR 45
FDR 45
FEYNMAN
COMPUTING
CENTER
MAIN
RING

Feeder 45

- WORK INCLUDES REPLACEMENT OF CABLE BETWEEN:
  - THE MASTER SUBSTATION AND EXISTING POWER MANHOLE P-71C.
  - THE EXISTING A1 SERVICE BUILDING TRANSFORMER AND THE EXISTING 4-WAY AIR SWITCH AT THE EXISTING F4 SERVICE BUILDING.
  - NEW IN-LINE SPLICES, WYE SPLICES AND FEEDER TAPS SHALL BE INSTALLED AS PER DWG. E-41.
  - ONE NEW AIR SWITCH WILL BE INSTALLED AT EXISITNG POWER MANHOLE P-EXISITNG OIL SWITCH AT P-123.
  - ONE SECTION OF NEW CONCRETE ENCASED DUCT BANK WILL BE INSTALLED BETWEEN EXISTING MANHOLES P-1 NA DP-301.

- EXISTING FEEDER 45 CABLES WILL BE REMOVED AFTER THE INSTALLATION OF THE NEW FEEDER 45 CABLES. (NEW CABLES WILL INSTALLED VIA AN
- ALTERNATE ROUTE FROM THE EXISTING FEEDER 45 CABLES).
- FEEDER 45 HAS AN ALTERNATE SOURCE FROM FEEDER 45 OR KAUTZ ROAD SUBSTATION.